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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,019	02/03/2004	Kevin Carpenter	AUT5428.01A	5345
8156	7590	03/22/2005	EXAMINER	
JOHN P. O'BANION O'BANION & RITCHEY LLP 400 CAPITOL MALL SUITE 1550 SACRAMENTO, CA 95814			NATALINI, JEFF WILLIAM	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

17A

<b>Office Action Summary</b>	Application No. 10/772,019	Applicant(s) CARPENTER, KEVIN	
	Examiner Jeff Natalini	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 11-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                             |                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/3/04</u> . | 6) <input type="checkbox"/> Other: ____                                                |

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-10, drawn to an apparatus for tracing electrical shorts in a circuit under test, classified in class 324, subclass 522.
  - II. Claims 11-23, drawn to an apparatus for tracing electrical shorts in a vehicle circuit under test, classified in class 324, subclass 522.
  - III. Claims 24-31 drawn to an apparatus for isolating shorts, classified in class 324, subclass 527.

Claim 1 link(s) inventions I and II, because claim 1 encompasses the basics of claim 11. The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim(s), claim 1. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Inventions I, II, and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as tracing shorts in a printed circuit board by using voltage lacks. Invention II has separate utility to such as tracing shorts in a vehicle under test (preamble drawn into claim 11) by detecting resistance and has a comparator circuit and detection for detecting additional changes in the vehicle circuit. Invention III has separate utility to isolate shorts in a circuit under test within a vehicle by detecting a change in voltage that exceeds a predetermined amount and contains a power supply and voltage reference circuit. See MPEP § 806.05(d).

During a telephone conversation with Mr. John O'Banion on March 14, 2005 a provisional election was made without traverse to prosecute invention I, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Objections***

2. Claim 9 is objected to because of the following informalities:

- There is no antecedent basis for "said means for audibly indicating a sudden rise in circuit voltage", in claim 1 means are for indicating a "change" in circuit voltage.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (3991413).

In regard to claim 1, Berger discloses an apparatus with means for producing a sufficiently continuous source of a substantially fixed current flow into a circuit under test (abstract); means for continuously monitoring the voltage across said circuit under test (last sentence of abstract); and means for audibly indicating a sudden change in circuit conductance (col 2 line 6-10).

Berger lacks specifically stating the device traces electrical shorts in a circuit under test.

Though it is noted the recitation "tracing electrical shorts in a circuit under test" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481

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(CCPA 1951). Berger discloses an apparatus that monitors for open circuits, it is known in the art that open circuits have infinite resistance while short circuits have negligible resistance, so one skilled in the art would be able to recognize when monitoring the circuit in this way if a short circuit was present in the system based on the change in voltage.

In regard to claims 3 and 4, Berger lacks wherein said means for producing a continuous source of fixed current is configured for generating a current exceeding one ampere and more specifically within the range of .5 amperes to ten amperes.

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Berger to produce a fixed current in the range of 1-10 amperes as taught by MPEP 2144.05 IIB states that a particular parameter must first be recognized as a result effective variable, i.e., a variable which achieves a recognizable result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

In regard to claim 5 and 6, Berger discloses wherein said means for continuously monitoring the voltage across said circuit under test comprises a voltage detector for generating an output signal in response to detecting a sufficient voltage/conductance change across said circuit under test (col 1 line 59 – col 2 line 10).

In regard to claims 7 and 8, Berger lacks specifically wherein the voltage change is within the range of approximately .2 volts to 1.0 volts and more specifically is in the range of approximately .4 volts to .7 volts.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to understand that small variations in voltage sometimes happen and don't necessarily mean there is a fault in the circuit as well as sometimes large quick variations in voltage happen that are not dangerous, so it would be wise to set a limit within the range of .2 V to 1.0 V for a voltage change to generate an output signal because MPEP 2144.05 IIB states that a particular parameter must first be recognized as a result effective variable, i.e., a variable which achieves a recognizable result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

In regard to claim 9, wherein means for audibly indicating a sudden rise in circuit voltage comprises an audio annunciator (known in the art to be a device that gives sound feedback about what is happening in a system) coupled to said voltage monitoring means and configured for producing an audible output in response to said sudden rise in circuit under test voltage (col 4 line 26-37; the audio alarm gives feedback stating the system is in an undesired state).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (3991413) in view of Talbot et al. (5144225).

Berger lacks wherein said means for producing a continuous source of fixed current comprises a reference circuit coupled to a control circuit having a feedback loop

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for maintaining a selected output current over a range of conductance for said circuit under test.

Talbot et al. discloses a reference circuit (fig 12 (320 and elements surrounding the area)) coupled to a control circuit (338) having a feedback loop (330) for maintaining a selected output current over a range of conductance for said circuit under test (col 11 line 1-17).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Berger to have a reference circuit coupled to a control circuit having a feedback loop for maintaining a selected output current in order to maintain a constant voltage across the circuit (col 11 line 16-17; this would be similar to the instant invention as the voltage should be constant until a fault is present).

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (3991413) in view of McIntyre (5905439).

Berger lacks wherein said means for producing a continuous source of fixed current is configured for generating a current exceeding one ampere and more specifically within the range of .5 amperes to ten amperes.

McIntyre discloses an apparatus wherein loads are monitored during operation and they each draw one ampere during normal operation (col 3 line 30-32).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Berger to produce a fixed current of one ampere (in range of .5-



10 amperes), to provide normal current to the load as taught by McIntyre so that the threshold can be set to determine errors (col 3 line 33-40).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (3991413) in view of Masia et al. (5382909).

Berger lacks specifically stating that the amount of current output by the continuous source of output current is able to be adjustably selected by the user.

Masia et al. discloses in a fault detection apparatus that a fixed current source is able to be adjusted to a desired and known value (col 15 line 3-6).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Berger to be able to adjust the current source to a desired and known value as taught by Masia et al. in order to have improved accuracy in fault detection (col 15 line 6-7).

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Benesh et al. (5514964) teaches injecting a continuous sine wave current into the system where the voltage is detected and a hazard current is determined which will trigger audio alarms if outside of a particular range. Dolan (4237721) detects exposure of a circuit to a substance by sourcing a constant current to the circuit and measuring the voltage across the circuit to determine if a substance is present on the circuit.

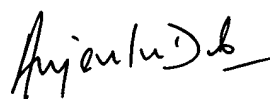
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeff Natalini

  
**ANJAN DEB**  
**PRIMARY EXAMINER**